



**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
(MMUST)**

SCHOOL OF COMPUTING AND INFORMATICS (SCI)

**STRATEGIC PLAN
2016/17 - 2019/20**

The University of Choice

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MESSAGE FROM THE VICE CHANCELLOR



The unveiling of the School of Computing and Informatics 2016/17-2019/20 Strategic Plan marks an important milestone in the growth and development of this academic unit in the University. The realization of this Strategic Plan is a culmination of tireless efforts of several stakeholders whom I sincerely thank and appreciate.

I thank the MMUST Council, Senate and the University Management Board for being the catalysts in initiating the process of writing the 2015-2019 Strategic Plans. Without you, the impetus to review the existing plans and developing the current Strategic Plan could not have been hatched, rolled out and realized. Specifically, I thank Prof. Egara Kabaji (DVC, PR&I) for supervising the entire exercise; Prof. Joseph Rotich (DVC, A&F) for facilitating the Strategic Plan writing process and Prof Josephine Ngaira, the DVC (A&SA) for the constructive contributions relating to the academic division from which the School of Computing and Informatics falls.

Special appreciation goes to the SCI Strategic Planning Steering Committee: Dr. Kelvin Omieno, Dr. Stephen Mutua & Dr. Daniel Otanga for the technical insights in piecing together the 2016-2019 Strategic Plan. I thank Mr. Victor Kadima, and Mrs. Resa Nyukuri for their dedicated services in providing the logistical administrative and secretarial services.

To all the staff members of the School of Computing and Informatics and other stakeholders, thank you for your input in the preparation of this Strategic Plan. We are also grateful to our departmental office administrator for sharing the information and feedback through the intranet.

It is my humble belief and conviction that the concerted efforts made in developing the SCI Strategic Plan will be enhanced and that we shall all renew our energies as a University to walk the talk documented in the University-wide 2015/16-2019/20 Strategic Plan. As a team, we wish to make our University a truly preferred *University of Choice*.

Prof. Fredrick Otieno
Vice Chancellor

MESSAGE FROM DVC A&SA



Academic Division is one of the major divisions within the central administration and organization of Masinde Muliro University of Science and Technology (MMUST). The division is administered through the office of the Deputy Vice Chancellor for Academic Affairs Prof. Josephine Ngaira, with the assistance of administrative staff headed by the Registrar for Academic Affairs.

The Academic Affairs encompasses a wide array of activities and functions in support of the academic mission of the university. The Deputy Vice Chancellor for Academic Affairs coordinates academic programs, academic instruction, student learning, and academic outreach and community partnerships.

The Deputy Vice Chancellor for Academic Affairs works to ensure academic staff quality and advancement by providing leadership on matters related to academic staff appointment, promotion and the overall working conditions of the academic staff.

The Deputy Vice Chancellor, Academic Affairs also works to increase student retention, promote student engagement and active learning and ensure that students achieve their educational goals. In addition to working with the deans, coordinators and directors in Faculties, Schools and Centers, the office of Academic Affairs' responsibilities include academic planning, programs, student admission and support services, University Examinations, Academic Linkages and Collaborations, Academic Advising, the Learning Centre, Committee of Deans, Senate Secretariat and University Library.

The School of Computing and Informatics falls in our academic vision of establishing the goal of creating a learning environment steeped in innovation and characterized by discovery, collaboration, inquiry, and engagement. We take pride in demonstrating these values for our students and their families in their academic and co-curricular experiences. We shall become more self-sufficient and entrepreneurial so that we can better meet the opportunities before us. We must lead the way in new integrative approaches to teaching, scholarship, and outreach by developing meaningful partnerships and embracing innovation.

Prof. Josephine Ngaira
DVC A&SA



MESSAGE FROM THE DEAN, SCHOOL OF COMPUTING AND INFORMATICS

The School of Computing and Informatics is a school that has been developed from the department of Computer Science, in the Faculty of Science and therefore seeks to address the teaching, learning, research and harnessing of the emerging technologies to enhance research capacity. The establishment of SCI will focus the School's personnel towards attaining the University vision of being a Centre of excellence in Information Technology, Sciences and Innovation. It will propel the University towards making its contribution to the local community, the county, and the nation in the attainment of the Vision 2030, and Millennium Development Goals in the East African region.

The creation of SCI will broaden the mandate of ICT scientists to open up for more and stronger possible collaborations between the School and other stakeholders/partners including communities, industry and international organizations that are focused on ICT. It will also enable the staff to focus their energies in their academic and professional specialties. As a school, it will be better positioned to enhance ICT personnel capacity building and Internationalization of MMUST products.

This plan provides strategic direction, a set of broadly defined goals critical to the evolution of our School and by extension our university. It is not a prescriptive plan, but rather a dynamic one open to modification as we proceed, progress, and observe changes in the world. The ideas in this plan are meant to guide our work, focus our priorities, and inspire us to move forward in exciting new directions.

Dr. Kelvin K. Omieno, Ph.D

Ag. DEAN, SCI

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ACRONYMS

DVC, (A & SA)	- Deputy Vice Chancellor, Academic & Students Affairs
COD	- Chairman of Department
CUE	- Commission for University Education
ICT	- Information and Communication Technology
IGU	- Income generating unit
MMUST	- Masinde Muliro University of Science & Technology
SWOT	- Strengths, Weakness, Opportunity, Threats
SCI	- School of Computing and Informatics
VC	-Vice Chancellor

EXECUTIVE SUMMARY

The School of Information and communications technology has developed a four-year strategic plan 2016/17 – 2019/20. This strategic plan is in line with the university strategic plan for the same period. This strategic plan anticipates a revamped ICT School that will provide ICT services effectively and efficiently in accordance with the University mission and objectives.

The strategic plan has five chapters. Chapter one is an introduction that traces the historical background relating to the formation of the School from Computer Science department.

Chapter two outlines the supporting philosophical framework as pointed out by the School 's motto vision and mission. Furthermore, it also outlines the general and specific objectives.

Chapter three highlights the situational analysis. The strategic plan outlines the SWOT analysis which focuses on the strengths, weaknesses, viz a viz opportunities and threats.

Chapter four identifies the strategic issues and implementation framework. The strategic plan highlights four strategic issues Grow a Global Presence, Enhance student Success, Research Scholarship and Collaboration, and Quality Faculty Life.

Chapter five outlines the costing and funding. This section presents the estimated cost to achieve each objective and the sources of funds for its overall implementation. The projected budget required for the implementation of the strategic plan is Kshs. 41.25 millions. This will be financed through government capitation – Tuition Fees, Fees for Industrial training and workshops and IGU.

CHAPTER ONE: INTRODUCTION

1.1 Historical Background

The School of Computing and Informatics (SCI) was created from the department of computer science in February 2016. It was founded by Dr. Kelvin K. Omieno who by then was Chairman of Computer Science department. It is one of the core Schools at Masinde Muliro University of Science & Technology responsible for facilitating the teaching and research in the field of Computer Science, Information Technology, Information Systems and Knowledge Management and Computer Security and Forensics for the main University and its campuses. The School of Computing and Informatics has four (4) approved departments namely; Computer Science; Information Technology; Information Systems and Knowledge Management; Computer Security and Forensics and one coordinating unit responsible for informatics and consultancy. At the moment, two departments are operational namely: Department of Computer Science, headed by Dr. Stephen M. Mutua, and Department of Information Technology, headed by Dr. Daniel A. Otanga.

To realize the above-mentioned functions effectively, the School of Computing and Informatics has embarked on a FOUR (4) year strategic plan that will enable the school move forward in order to achieve the mission and vision of the University at large.

1.2 Implementation

A strategic plan needs an implementation plan that allows finer details to be specified and changes due to the environment reflected. Following are implementation details.

- i. The School will create a dashboard of all primary metrics. The dashboard will be updated twice during each academic year in January and July. The dashboard and the update process will be available for all faculty and staff to view and comment upon. All data on the dashboard will be anonymized.
- ii. Allocation of resources from the university, when they become available, will be guided by the strategic plan.
- iii. Decisions on faculty hiring, such as areas in which to hire and the hiring process, will be based on input received during annual faculty retreats and other meetings.
- iv. Faculty input will serve as the primary basis for arriving at and implementing a plan on how to foster a collegial and cohesive

atmosphere in the department. Such input will be solicited during annual retreats and faculty meetings.

- v. To ensure progress towards enhancement in diversity, we will, whenever feasible, involve underrepresented groups at all levels of departmental administration including and not limited to faculty hiring, graduate and undergraduate program administration, and research space assignment.
- vi. The SCI will continually evaluate faculty and student needs for computing and administrative services and ensure that these are met.
- vii. Faculty in each research area will be asked to determine the top-tier publication venues for that area
- viii. The Dean School of Computing and Informatics shall sign performance contract with Deputy Vice Chancellor, Academic and Student Affairs with a view of factoring in Strategic Plan in performance management system for each financial year.

CHAPTER TWO: PHILOSOPHICAL FOUNDATIONS

This chapter presents the philosophical foundations of this strategic plan. Among other things it details the philosophy, vision, mission statement, core values and School functions.

2.1. Philosophy

The school holds view of becoming a premier Centre of excellence that actively foster a culture of discovery, learning, engagement, and personal growth that is inclusive of, and supports, all elements of Masinde Muliro University of Science and Technology while respecting, enhancing, promoting, and celebrating the diversity of culture and views among its faculty, students, and staff.

2.2. Vision Statement

Provide Excellent and Innovative Research and Education, Entrepreneurship, and Professional Leadership in Computing, Information Systems and Engineering.

2.3. Mission Statement

To create and disseminate knowledge in Computer Science, Information Technology and related fields that fosters our students' intellectual and professional development and ultimately is responsive to societal needs.

2.4. Core Values

To undertake its Mission and realize its Vision, School of Computing and Informatics upholds the following values:

- i. Teamwork and collaboration.
- ii. Excellence in reputation and achievement.
- iii. Honesty, integrity, and fairness.
- iv. Open communication and mutual respect.
- v. Personal responsibility.
- vi. Academic counselling
- vii. Welfare support
- viii. Gender equity
- ix. Extra-curricular activities

2.5. School Quality Objective

To engage in the discovery and application of new computing knowledge and skills for addressing sustainable socio-technical and ICT concerns locally, nationally, regionally and internationally

2.6. Specific Quality Objectives

- a) To develop human resource with modern skills in Computing and related fields at Proficiency, Certificate, Diploma, Degree and Postgraduate levels
- b) To produce competent computing graduates and Entrepreneurs capable of competing locally and internationally
- c) To harness acquired computing knowledge through research, scientific and technological innovations and undertake technology transfer to end users
- d) To participate in consultancy, innovation, incubation, dissemination and preservation of knowledge and embrace property rights policy
- e) To foster linkages with industry, institutions and other stakeholders for enhanced and sustainable livelihoods
- f) To increase national and international recognition of the school
- g) Broaden the scope and involvement of faculty in interdisciplinary research
- h) Produce identifiable prototype systems that are used by industry and/or as research tools.
- i) Improve student quality and retention.
- j) Effective recruitment and timely graduation of diverse, high-quality graduate students with a focus on training Ph.D. students.

CHAPTER THREE: SITUATIONAL ANALYSIS

3.1 Introduction

In order to achieve the School vision and mission, a comprehensive SWOT analysis was undertaken to highlight the strengths and weaknesses in relation to external opportunities and threats. The SWOT (Strength, weaknesses, Opportunities and threats) analysis basically took a four-part approach to assess the School overall strategic position. This is summarized below:

3.2 SWOT Analysis

3.2.1 Strengths

Strengths are the resources or capabilities that help an organization accomplish its mandate and achieve its strategic objectives. The School has identified its strengths as:

- i. Market-driven academic programmes (from certificate to doctorate)
- ii. Developed short courses and professional courses
- iii. Supportive Management style
- iv. Qualified and experienced academic and technical staff
- v. The location of University for ambient learning environment
- vi. Effective efficiency internet and electronic resources
- vii. Recruitment of qualified students
- viii. MMUST as TVET institution hence enabling School to develop knowledge-based programmes;
- ix. Partnerships and linkages with industry and other education institutions
- x. Proactive and action oriented culture.

3.2.2 Weaknesses

Weaknesses are deficiencies in resources and capabilities that hinder an organization's ability to accomplish its mandate. The following were identified as the weaknesses of the School:

- i. Lack of sufficient funds for facilitation to run school activities (such as incubation rooms, seminars and conferences)
- ii. Inadequate resources, and facilities
- iii. Inadequate human resource

- iv. Inadequate motivation by staff due to low morale
- v. Lack of a framework to take advantage of income generating opportunities (including lack of policy).
- vi. Lack of proper laboratories with working and quality machines and softwares
- vii. Poor marketing strategy by the University marketing team;
- viii. Slow bureaucratic processes such as procurement process;

3.2.3 Opportunities

Opportunities are current or potential favourable conditions in the external environment that can be exploited to enhance an organization's capacity. The opportunities that School of Computing and Informatics at MMUST can exploit are identified as;

- i. Distance-learning - increasing demand for electronic learning
- ii. Demand for flexible learning process such as evening/ weekend
- iii. Flexible fee payment mode by adopting Unit-costing
- iv. University business automation such as ERP System, KOHA
- v. Use of students to develop Software prototypes
- vi. Availability of school of computing and Informatics web sub-domain with its own web portal
- vii. Support from partners (donors, iHub, KENET etc)

3.2.4 Threats

Threats are unfavourable external situations that may impact negatively on the University. They could be barriers, constraints, or anything that might cause problems, damages, harm, financial loss or injury to the business. The following were identified as potential threats to the School of Computing and Informatics:

- i. Competition from other Universities near MMUST.
- ii. High cost of ICT – computing equipment.
- iii. Rapid technological changes.
- iv. High turnover of teaching and technical staff.
- v. Poor resource provision including equipping computing laboratories;

- vi. Lack of commitment in service delivery by both teaching and technical staff to the students;
- vii. Security – threats to security, e.g. worms, viruses, hackers, etc
- viii. Non-payment of tuition fees by students

“The roots of education are bitter, but the fruit is sweet.”
Aristotle

CHAPTER FOUR: GOALS, STRATEGIES AND METRICS

4.1 Strategic Issue # 1: Grow a Global Presence

Goal 1: Increase national and international recognition of the School.

Strategies:

S11: Encourage, support, and recognize faculty who engage in novel research and leadership with a clear understanding of and aspiration for short- and long-term societal impact.

S12: Devise a metric-based reward and reallocation system that recognizes excellence in discovery, learning, and engagement.

S13: Establish School online portal for Upload of Teaching materials and Staff profile

Primary Metrics:

- a) Impact as measured using criteria from the CUE
- b) Increase web content on the School of Computing and Informatics Web Portal
- c) Research expenditure and Seminars
- d) Number of students graduated with PhD and MSc
- e) Number of faculty awards reflecting national and international recognitions, including memberships in prestigious organizations
- f) Number of artifacts with significant direct or indirect societal impact
- g) Numbered of endowed chairs and distinguished professorships
- h) Membership in program committees
- i) Membership in editorial boards,
- j) Keynote addresses delivered in conferences

S13: Set clear standards for hiring, tenure, and promotion of senior lecturers, associate and full professors and that focus on impact, leadership, and international recognition.

Primary Metric:

- a) All academic staff to be recruited and promoted immediately based on the harmonised CUE guidelines on promotions;

Secondary Metrics for S11 and S12:

- a) Number of faculty- and/or student-generated artifacts with significant influence on commercial products and start-up companies
- b) Number of graduates going to highly regarded Computer Science and Information Technology departments, research laboratories, and companies
- c) Number of publications in top-tier venues

S14: Further strengthen the School by taking advantage of opportunities to advance traditional areas of strength while expanding in emerging areas.

Metrics:

- a) All primary metrics for S11 and S12 applied to traditional and emerging areas.

Goal 2: Broaden the scope and involvement of faculty in interdisciplinary research.

Strategies:

S21: Facilitate the creation of new synergies, partnerships, and collaborations among faculty and students to pursue inter- and multi-disciplinary research.

S22: Encourage interdisciplinary hiring and promotion of faculty with a strong record of interdisciplinary research.

Primary Metrics:

- a) Number of research projects shared between various departments in SCI and departments in other faculties/schools/ Centres
- b) Number of students from other faculties/schools co-advised by a SCI faculty member
- c) Number of SCI students co-advised by a faculty member in another faculties/schools/centre
- d) Number of faculty with courtesy and joint appointments in other faculties/schools/centre
- e) Percentage of faculty contributing to the above metrics

Goal 3: Produce identifiable prototype systems that are used by industry and/or as research tools.

Strategy:

S31: Encourage faculty and Students to engage in innovative systems development activities.

321: Activate the Applications Unit for Incubation of Ideas

Metrics:

- a) Running computer applications coordinating unit with a Coordinator
- b) Number of companies using the prototype system
- c) Number of researchers and students using the prototype system
- d) Number of Incubation projects launched by the faculty and students in the school.



Source: Computing students engaging in Women in Technology Workshop

4.2 Strategic Issue #2: Enhance Student Success

Goal 1: Improve student quality and retention.

Strategies:

S11: Broaden and raise standards for admission to the undergraduate program.

S12: Create new Academic departments: department of computer security and department of information Systems

Metrics:

- a) Average KCSE score of incoming students
- b) Number of students from underrepresented groups such as disabled students;
- c) Fully operational departments of Computer security and department of information Systems

S13: Implement a flexible undergraduate curriculum that provides a high-quality, in-depth education focusing on fundamental concepts, tools, and techniques

Metrics:

- a) Retention rate
- b) Number of students enrolled in evening/ weekend model of study
- c) Number of Inter-faculty transfers for change of programme by students
- d) Number of students attending graduate school
- e) Profile of students dropping out of the program

S14: Encourage, support, and reward faculty who engage in high quality and innovative teaching and the development of interdisciplinary curricula.

Metrics:

- a) Number of teaching awards received
- b) Average instructor evaluations on student surveys
- c) Number of new courses developed
- d) Number of educational grants received

Goal 2: Offer undergraduate students the ability to go beyond coursework and explore additional possibilities in computer science, Information Technology, Information Systems and Computer Security.

Strategies:

S21: Encourage undergraduate students to enrol in optional independent study courses, professional, or research projects.

Metric:

- a) Number of students enrolled in independent study, professional courses, and research projects.

S22: Encourage and reward faculty for providing students with alternate pathways for improved learning experiences.

Metric:

- a) Number of faculty offering independent study, senior design, and research projects.

S23: Improve and expand the Short Courses, Certificate and Diploma programmes.

S24: Start professional courses such as CCNA, Oracle, A+,e.t.c

Metrics:

- a) Number of short courses developed and offered by the school
- b) Number of certificate and diploma courses developed in the various departments of the school
- c) Number of students enrolling in short courses and diploma courses
- d) Number of faculty involved in Certificate, Diploma and short courses
- e) Number of Professional courses started

Goal 3: Expand pedagogical approaches focused on engaging students in learning across the curriculum

Strategies:

S31: Promote use of engaging pedagogical approaches (e.g., flipped classrooms, team-based/problem-based learning, less hierarchical/more facilitative pedagogy, study groups, action research, students teaching students)

S32: Promote increased faculty-student and student-student interaction (e.g., instructor-student feedback cycle, peer assessment/review, early alerts)

S33: Coordinate curriculum (align curriculum among multi-section courses including common courses), integrate civic engagement and experiential learning projects (e.g., practical), and application of knowledge

S34: Advance student support through information literacy

S35: Expand online course offerings for all students and for targeted populations (adult learners) on ODeI Platform

Metrics:

- a) Number students of students trained in advanced concepts
- a) Train lecturers in School of Computing and Informatics on pedagogical concepts
- b) Rating by students on lecturer/ student interaction
- c) Number of bootcamp and hackathons organized by the school
- d) Number of Programme leaders and appointment of the academic leaders in the school of computing and Informatics
- e) Number of students enrolled on ODeL platform for certificate, Diploma, Bachelors and Postgraduate programmes.

Goal 4: Effective recruitment and timely graduation of diverse, high-quality graduate students with a focus on training Ph.D. students.

Strategies:

S41: Offer a broad, flexible, and quality graduate curriculum that provides breadth and allows students to match their individual strengths to the available areas of specialization in the department.

Metrics:

- a) Number of national and international recognitions received by graduate and undergraduate students
- b) Number of students graduating with a PhD or MSc
- c) Time to graduation by students
- d) Review and restructuring of academic programmes as per CUE guidelines;
- e) Quality of places that hire graduates and types of jobs (e.g., universities ranked higher than MMUST, corporate partners, IT jobs)

S42: Establish a recruitment program that specifically targets postgraduate students and a diverse group of students including underrepresented group

Primary Metric:

- a) Number of postgraduate students compared to undergraduate students for each programme in the school to meet CUE requirement;
- b) Number of female and under-represented minority students receiving MSc and PhD degrees

Secondary Metrics:

- a) Number of Kenyan citizens and permanent residents in the graduate programs
- b) Number of PhD students
- c) Number of MSc students

S44: Set higher standards for quality and enrolment goals in the regular on-campus MSc and PhD program.

Metrics:

- a) Number of students enrolled in the MSc and PhD programmes who meet the quality standards as per CUE guidelines
- b) Quality of students measured by their undergraduate performance and performance in the program

Goal 5: Effective Establishment of Proper Infrastructure to Support the Teaching and Learning

Strategies:

S51: Equip Computer Laboratories with state-of-the art Computers able to support Learning.

Metrics:

- a) Number of computers in the computer laboratories
- b) The ratio of Computer: Student in the School
- c) Number of original computers acquired visa-second hand computers

S52: Establish acquisition of Genuine Software for Teaching and Learning

Primary Metric:

- a) The Number of genuine softwares purchased to support the teaching and learning

Secondary Metrics:

- a) Number of courses using open source softwares
- b) Anti-virus used to protect the system

4.3 Strategic Issue #3: Research, Scholarship and Collaborative Work



Goal 1: Actively be involved in Research activities in the School

Primary Strategies:

S11: Develop working research groups with niche areas in computing.

S12: Write research proposals for

funding (External Funding)

S13: Engage SCI faculty and Students in Multi-disciplinary research

Metrics:

- a) Number of Research groups in the school
- b) Number of staff and students involved in research
- c) Number of collaborative research projects
- d) Number of postgraduate students who won research funding from organizations such as African Academy of Sciences, URF, NRF etc
- e) The amount money the university obtain as a result of research by SCI faculty and Students

Goal 2: Actively participate in and improve Mode of Study to Weekend/Evening/

Primary Strategies:

S21: Introduce weekend and evening teaching and Learning programmes.

Metrics:

- a) Number of computing weekend/evening classes created with direct support from the school of computing
- b) Number of programs running on online/weekend/evening mode
- c) Number of Lecturers and students impacted by these programs

S22: Collaborate with International Universities such as EPITECH on related programmes.

S23: Collaborate with other Universities and county governments on eHealth and other ICT-related programmes.

Metrics:

- a) Number of post-graduate programmes on e-Health
- b) Number of students enrolled in eHealth programmes
- c) Number of Bootcamps and Hackathon workshops co-organized between MMUST and UON and other institutions
- d) Number of staff and students involved in academic exchanges between MMUST SCI and other Universities such as EPITECH.
- e) Number of publications (co)authored by MMUST SCI faculty, staff, and students and UoN Sci staff and students in refereed journals and international conferences

S24: Develop and deliver Online and distance learning for new computing technologies and methods of instruction.

Metric:

- a) Number Lecturers receiving training in online instruction by the School of Computing and Informatics

Secondary Strategies:

S24: Involve faculty, students, and staff in educational visits to Industry sites and other Universities

S25: Explore partnerships with Service Industry such as Safaricom and KENET

Secondary Metrics:

- a) Number of visits to service industries made by School faculty, students, and staff
- b) Number of grants made to SCI faculty & staff for educational programs and development
- c) Evidence that involvement in Industry partnerships is a positive factor in professional advancement within the School of Computing and Informatics
- d) Number of Joint Agreements and MOUs signed between MMUST SCI and Service Industries

Goal 3: Improve the societal impact of the faculty and school.

Primary Strategies:

S31: Encourage faculty to serve as members of important national agencies and serve on nationally prominent advisory committees.

S32: Encourage faculty (and where appropriate, staff) to serve on state, national, and international government advisory boards and commissions, including standards bodies (e.g., ICTA, ICT Boards).

S33: Encourage faculty (and where appropriate, staff) to serve as officers and board members in professional associations and societies.

Metrics:

- a) Number of faculty holding positions in external organizations
- b) Number of outreach activities or community engagements
- c) Number of faculty with recognized involvement in MMUST engagement programs, such as MMUST Enterprises, Innovations

S34: Encourage faculty to create open source projects and other publicly available artefacts.

Metric:

- a) Number of open source projects created or contributed to by faculty

Secondary Strategies:

S35: Promote faculty, staff, and students for external recognitions and awards for notable service through their professional activities.

S36: Provide release time for individuals involved in external engagement positions.

S37: Include curricular opportunities and possibly academic credit for students to engage in professional service activities.

S38: Conduct events and establish resources for the general public on computing related topics of general interest.

S39: Create a culture within the school where societal impact and service are valued.

S40: Create a “problem of the week”, seminars and Hackathon campus activity.

S41: Create and maintain a knowledge transfer, entrepreneurial focus in partnerships with businesses.

Secondary Metrics:

- a) Number of faculty with external recognitions for engagement and service
- b) Number of events held for the general public, and/or podcasts uploaded, and/or websites developed, etc.
- c) Evidence that involvement in societal impact activities is a positive factor in professional advancement within the department
- d) Number of textbooks published
- e) Number of expository articles written
- f) Number of entrepreneurial initiatives
- g) Number of innovative and incubation projects

Goal 4: Enhance partnerships with alumni, industry, non-profits, and government.

Primary Strategies:

S41: Increase and promote the value of the corporate partners' program to attract, retain, and involve more partners.

Metrics:

- a) Number and longevity of corporate partners
- b) Funds received from corporate partners

S42: Solicit feedback from industry, government, and non-profits on educational offerings and desirable skills

Metrics:

- a) Number of solicitations made
- b) Number of replies
- c) Impact on educational program

S43: Collaborate with industry to motivate research ideas and help solve problems (e.g., by hosting industry visitors or by encouraging short-term faculty visits to industry).

Metrics:

- a) Number of sabbatical appointments (faculty at industry)
- b) Number of reverse sabbatical appointments (industry personnel on campus)
Number of faculty/corporate exchange visits

S44: Appoint senior people from outside academia in formal roles such as adjunct faculty and distinguished practitioners, and involve them with faculty and students.

Metric:

- a) Number and level of involvement of external experts as adjuncts

S45: Maintain and enhance current university alumni programs.

Metrics:

- a) Funds received from alumni
- b) Number of gifts

Secondary Strategies:

S46: Solicit feedback from recent alumni regarding their preparation for the workforce.

S47: Establish and support programs based on distance learning for external participants to gain new skills.

S48: Create a culture within the school where external engagement is valued.

Secondary Metrics:

- a) Number of research and educational grants from corporate partners
- b) Evidence that involvement in external partnerships is a positive factor in professional advancement within the school of computing and informatics

4.4 Strategic Issue #4: Faculty Quality of Life

Goal 1: Enhance School of Computing and Informatics website

Primary Strategies

S1: Complete a needs assessment for the school website

S2: Update information on current website portal for the school

S3: Reconsider how faculty are currently listed on website and consider adding staff curriculum vitae and activities

S4: Assign website responsibility to a specific staff member(s) in the school for updating

S5: Develop a process to update the news of events on a monthly basis at a minimum

S6: Develop online applications for industrial attachment, industrial training

S7: Develop online application for assessing staff teaching and service delivery by students

S8: Develop online application for tracking missing / incomplete results by students

Metrics:

- a) Content for staff and students on the web portal
- b) Number of staff uploaded and up to date personal profile on web portal
- c) Online applications for industrial attachment, training and managing incomplete or missing marks

Goal 2: Appoint and communicate functions of each staff to the SCI faculty

Strategies:

S21: Develop a short, concise directory that lists all office personnel and their functions

S22: Create Service Level Agreements for the office of the Dean of the School and also in various departments in the School

S23: Twice yearly, communicate with the faculty about their roles and any changes that have occurred

Metrics:

- a) Up to date staff directory
- b) Design and Operational Service-Level Agreement (SLAs) in the school

- c) List of staff and their roles in the school of computing and Informatics:
including: Graduate and Seminars, Industrial workshops/ training, Industrial attachment, Professional and incubation ideas, student academic advisors;

Goal 3: Build a cohesive team throughout the entire department

Strategies:

S31: Host at least twice yearly networking events for all members of the School

S32: Continue regular email School updates from the Dean, and departmental Heads

S33: Create and Investigate a School of Computing and Informatics twitter, & facebook page with information about different aspects of the School;

Metrics:

- a) Number of networking events hosted
- b) Regular emails between Dean, CODs, and SCI Staff
- c) Up and running twitter handle and face book pages for the school

Goal 4: Provide a new faculty School orientation program for all new faculty within 6 months of their hire date

Strategies:

- a) Develop an orientation programme for the new staff
- b) Create work procedure on how to handle new faculty

CHAPTER FIVE: COST AND FINANCING

5.1 Introduction

The 2016/17-2019/20 School of Computing and Informatics Strategic plan requires financial support. The financial support shall be drawn from University, grants and donors. The estimated cost and sources of financing are considered and presented in this section.

5.2 Estimated Cost of Implementing the Strategic Plan

For the successful implementation of 2016/17 to 2019/20 SCI Strategic Plan, the University management will provide the leadership needed in resource mobilization. The University strategy implementation committee, in consultation with the Dean and Chairpersons of departments in the School will work out the cost of each activity proposed in the plan to arrive at the total cost of the four-year plan.

Assistance will be sought from the government, development partners, donors and alumni to supplement internally generated funds. The Strategic Plan will be implemented in a 4-year period, covering 2016/17-2019/20. An effective fundraising strategy will be put in place with a view to enhancing the University financial resource base. The estimated cost of financing the strategic plan is illustrated in the table below;

Table 5.2: The Cost in Kshs. (millions) of implementing the Strategic Plan

S/N	STRATEGIC ISSUES	2016/17	2017/18	2018/19	2019/20	TOTAL
1	Undergraduate Lab-LBB 011	3.0	0	0	1.0	
2	Undergraduate Lab-LBB 016	0	1.5	2.5	2.0	
3	Postgraduate Lab-LBB 015	0	2.5	3.5	1.0	
4	Undergraduate Lab- SPD 005 {Common Courses}	0	5.0	2.5	0	
5	Computer Applications Unit	1.0	2.0	1.0	0	
6	Incubation Centre	0	5.25	2.25	0	
7	Teaching and Research	.25	2.0	1.5	1.5	
	GRAND TOTAL	4.25	18.25	13.25	5.5	
	OVERALL COST 41.25M					

NB: The costs of labs include: computers, accessories, projectors, projector screens, softwares,

5.3 Sources of Funds for implementing the Strategic Plan

The School hopes to raise funds from government capitation, fees collection and Enterprises through consultancy and short courses. This is presented in table below;

Table5.3: Estimated Sources of Funds (Millions)

S/N	Source	Annual Amount (Kshs.)	Projected Funds For Four Years (Kshs.)
1	Government capitation (development) ICT Vote		
2	FEES – Tuition		
3	FEES- Industrial Attachment/ Workshop		
4	IGU (Including Consultancy and Research Fundings)		
	Totals		106.9

```
CREATE OR REPLACE FUNCTION get_sal
(p_id employees.employee_id%TYPE)
RETURN NUMBER
IS
  v_sal employees.salary%TYPE := 0;
BEGIN
  SELECT salary
  INTO v_sal
  FROM employees
  WHERE employee_id = p_id;
RETURN v_sal;
END get_sal;
/

EXECUTE dbms_output.put_line(get_sal(100))
```

